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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/811,133	03/26/2004	Ralf Kruckel	ANO 6295 US/SWE 00606	2794

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EXAMINER	
CORDRAY, DENNIS R	

ART UNIT	PAPER NUMBER
1791	

NOTIFICATION DATE	DELIVERY MODE
05/12/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/811,133	KRUCKEL, RALF	
	Examiner	Art Unit	
	DENNIS CORDRAY	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5 and 8-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5 and 8-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 2/16/2010 have been fully considered but they are not persuasive.

Applicant argues that Cenisio et al does not teach using an emulsifier with a sizing composition comprising at least one cellulose reactive size and at least one cellulose non-reactive size, that Dilts et al discloses surfactants as optional in a sizing composition comprising AKD, ASA or rosin, and that Wendel et al teaches copolymer emulsions in which an emulsifier is optional but, if used, is preferably cationic. Applicant acknowledges, however, that Dilts et al does recite ethoxylated phosphate esters as possible surfactants, and that Wendel et al does recite alkyl phosphates as suitable surfactants. Applicant also argues that Dilts et al does not teach the claimed polymeric sizing agents, and that Wendel et al does not teach combining a cellulose reactive and a cellulose non-reactive sizing agent. Applicant further argues that Dilts et al and Wendel et al disclose a vast number of different kinds of surfactants, without suggesting that ethoxylated phosphate esters are preferred. Applicant argues that Cenisio et al teaches that the compositions are for surface sizing and that one of ordinary skill would have no reason to include an emulsifier contained in conventional internal sizing compositions in the surface sizing compositions of Cenisio et al. Applicant concludes that, in order to obtain the claimed dispersion, one would have to pick and choose individual aspects from the teachings in the cited references and select the claimed

emulsifier without suggestion to do so, and that the only way to accomplish this is with the use of improper hindsight.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Regarding the use of improper hindsight, "It should be too well settled now to require citation or discussion that the test for combining references is not what the individual references themselves suggest but rather what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." In re McLaughlin, 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

Regarding the multiple surfactants disclosed by Dilts et al and Wendel et al, a reference is not limited to its preferred embodiment, but must be evaluated for all of its teachings, including its teachings of non-preferred embodiments. In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979). Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

While Wendel et al prefers cationic emulsifiers, the reference does not criticize, discredit, or otherwise discourage the use of the claimed emulsifiers. Rather the claimed emulsifiers are recited as suitable anionic emulsifiers. Similarly, Dilts et al does not criticize, discredit, or otherwise discourage the use of the claimed emulsifiers.

Dilts et al discloses to one of ordinary skill in the art that the claimed emulsifiers are well known in the art and are suitable for AKD compositions, while Wendel et al discloses the claimed emulsifiers as conventional and that they are suitable for polymeric non-cellulose-reactive sizing agents comprising styrene and alkyl (meth)acrylates. Cenisio et al discloses combinations of the cellulose reactive and non-cellulose reactive sizing agents that the sizing compositions can be formed by mixing dispersions of the separate components (col 8, lines 1-6). It would have been obvious to combine the sizing dispersion of Dilts et al and the sizing dispersion of Wendel et al to form a sizing composition according to the teachings of Cenisio et al. One of ordinary skill in the art would have found it obvious that an emulsifier suitable for each sizing agent would also be suitable for a mixture of the sizing agents. Absent convincing evidence of unobvious results commensurate in scope with the claims, it would have been obvious to one of ordinary skill in the art to use the claimed emulsifier as a functionally equivalent option and to have a reasonable expectation of success.

While Cenisio et al discloses using the sizing compositions for surface sizing, the reference also discloses that the disclosed sizing compositions can be used for internal sizing (col 10, lines 1-3), which helps prevent the surface size from soaking into the

sheet, thus allowing it to remain on the surface where it has maximum effectiveness (col 9, lines 56-64).

Regarding the blends of surfactants disclosed by Dilts et al, the claimed surfactants are disclosed. Dilts et al teaches that the surfactants and the amounts used are adjusted to provide the desired particle size (col 15, lines 9-31). Absent convincing evidence of unobvious results commensurate in scope with the claims, it would have been obvious to one of ordinary skill in the art to determine and use a combination of the claimed emulsifier and cationic organic compound by routine optimization of the mixture to provide the desired particle size.

Frolich et al was used only to teach what is generally known in the art, that AKD dispersions are usually prepared with the aid of an anionic compound (e.g.-sodium lignosulfonate) in combination with a high molecular weight cationic starch or polymer and that, depending on the overall charge of the compounds of the dispersant system, the size dispersion can be anionic or cationic. It would have been obvious to one of ordinary skill in the art to include the claimed lignin sulfonate as a typical aid used in preparation of AKD dispersions.

The outstanding rejections over the cited prior art are maintained.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3, 5, 8, 9, 12-15, 17-22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cenisio et al (6162328) in view of Dilts et al (6576049) and further in view of Wendel et al (4051093).

Claims 1, 5, 8, 19-21 and 26: Cenisio et al discloses an aqueous dispersion useful for internal sizing or surface sizing of paper, the dispersion comprising a cellulose-reactive size such as a ketene dimer (AKD) and a polymeric non-cellulose-reactive size having a molecular weight preferably greater than 10,000. The aqueous compositions are preferably prepared by mixing dispersions of the separate components. Cenisio et al also discloses a method of making paper comprising providing an aqueous pulp suspension of cellulosic fibers, sheeting (forming a paper web) and drying the suspension to form a paper and applying the aqueous sizing dispersion to the surface of the paper (Abs; col 2, lines 41-50; col 3, line 53 to col 5, line 17; col 6, lines 52-53 and 60-63; col 8, lines 1-6). The sizing dispersion can also be used to internally size the paper by adding the sizing agents to the pulp suspension before it is converted into a paper sheet (col 9, line 61 to col 10, line 3). Dewatering the stock to form a sheet is a typical step in papermaking and would have been obvious to one of ordinary skill in the art. Although not explicitly disclosed, adding the sizing agents in the form of the disclosed dispersion would have been obvious as a functionally equivalent option.

In some embodiments, the polymeric non-cellulose-reactive sizing agent is a copolymer comprising monomers styrene or substituted styrene and vinyl monomers, preferably including alkyl acrylate or methacrylate (col 7, lines 25-44).

Cenisio et al does not disclose the claimed emulsifiers, but does disclose that the sizes are generally used as emulsions or dispersions (col 7, lines 61-63).

Dilts et al disclose sizing compositions for paper comprising AKD, an emulsion stabilizer and from about 0.01% to about 15% by weight of the sizing agent of a hydrophobic substance that increases the sizing efficiency of the sizing agent (Abs; col 2, lines 45-60). Suitable emulsifiers for the composition are well known in the art and include ethoxylated phosphate esters (col 14, lines 46-48 and 63-67; col 15, lines 1-3).

Wendel et al disclose a paper sizing composition comprising a copolymer emulsion and an anionic, nonionic or cationic emulsifier. The non-reactive copolymer sizing agent comprises:

(A) from 0.5 to 15 per cent by weight of monomers containing a C=C bond and at least one carboxyl and/or sulfonic acid or phosphate or phosphite group,

(B) from 5 to 30 per cent by weight of monomers containing a C=C bond and a tertiary or quaternary amino group, or a nitrogen-containing heterocyclic group,

(C) from 0 to 94.5 per cent by weight of styrene and/or acrylonitrile

(D) from 0 to 94.5 per cent by weight of acrylic or methacrylic acid esters of alkanols of 1 to 8 carbon atoms, and

(E) from 0 to 30 per cent by weight of further olefinically unsaturated monomers.

The amount of monomers C and D is at least 25%, preferably at least 70%, and up to 94.5% by weight of the polymer. Wendel et al disclose that preferred (meth)acrylic acid esters are methyl (meth)acrylates, ethyl (meth)acrylates, n-propyl (meth)acrylates, n-butyl (meth)acrylates and isobutyl (meth)acrylates (Abs; col 1, lines 33-34; col 2, lines 8-49, particularly lines 44-49; col 4, lines 63-65; col 5, lines 12-15). Thus, in some embodiments, the polymer of Wendel et al comprises 94.5% styrene and alkyl (meth)acrylates, the remainder being other ethylenically unsaturated monomers. Note that the instant claim language allows for additional species of ethylenically unsaturated monomers. Wendel et al recite suitable anionic emulsifiers for use in the sizing emulsion are conventional anionic alkyl phosphates that can be in the form of adducts of ethylene oxide (oxyalkylene phosphate esters).

The art of Cenisio et al, Dilts et al, Wendel et al and the instant invention is analogous as pertaining to sizing dispersions for paper. Dilts et al disclose that the claimed emulsifiers are well known in the art and are used for AKD sizing compositions. Wendel et al teach that the claimed surfactants are conventionally known and are suitable for the disclosed polymeric non-cellulose-reactive sizes. It would have been obvious to use the claimed emulsifier in the dispersion of Cenisio et al in view of Dilts et al and further in view of Wendel et al as a conventionally known emulsifier and as a functionally equivalent option, and to have a reasonable expectation of success, the emulsifier being disclosed in the prior art as suitable for both claimed sizing agents.

Alternatively, it would have been obvious to use the claimed emulsifier separately in either or both of the disclosed AKD and polymer size dispersions as a conventionally

known emulsifier for the sizes. Since Cenisio et al discloses mixing dispersions of the separate sizing components, the mixture would also comprise the claimed emulsifier.

The aqueous sizing dispersion so made is substantially the same as the claimed dispersion and the claimed stability would have been obvious to one of ordinary skill in the art because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent or at least obvious.

Claim 12: Cenisio et al discloses that the aqueous sizes can be used at a pH below 6 (col 7, lines 63-67). A typical size press solution has a pH between about 6 and 9 (col 8, lines 59-61). The term "about 6" overlaps the claimed upper limit of "about 6."

Claims 17 and 22: Cenisio et al does not disclose homogenizing the mixture of size dispersions. Dilts et al discloses that sizing compositions are formed by emulsifying the mixtures as is well known in the art to obtain a stable emulsion of a desirable median particle size (col 16, lines 36-48). It would have been obvious to one of ordinary skill in the art to homogenize the mixture as is typical in the art.

Claims 2, 3, 9, 13-15 and 18: Dilts et al discloses that blends of surfactants can be used (col 14, lines 46-48; col 15, lines 24-27). Other suitable surfactants disclosed are quaternary salts of trialkyl amines, which correspond to the claimed cationic compound (col 14, line 64 to col 15, line 8). The surfactants and the amounts used are

adjusted to provide the desired particle size (col 15, lines 9-31), thus using a combination of the claimed emulsifier and a cationic organic compound would have been an obvious option to one of ordinary skill by routine optimization of the mixture.

Dilts et al discloses that the AKD sizing composition includes an emulsion stabilizer, which are well known in the art and can be in some embodiments a synthetic or naturally occurring anionic polymer (col 15, lines 40-49; col 16, lines 8-13).

Claims 10, 11, 16 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cenisio et al in view of Dilts et al and further in view of Wendel et al and even further in view of Frolich et al (6306255).

The disclosures of Cenisio et al, Dilts et al and Wendel et al are used as above. Cenisio et al, Dilts et al and Wendel et al do not disclose a condensated naphthalene or lignin sulfonate.

Frolich et al teaches that AKD dispersions are usually prepared with the aid of an anionic compound (e.g.-sodium lignosulfonate) in combination with a high molecular weight cationic starch or polymer (Frolich et al, col 1, lines 13-30). Frolich et al also teaches that, depending on the overall charge of the compounds of the dispersant system, the size dispersion can be anionic or cationic.

The art of Cenisio et al, Dilts et al, Wendel et al, Frolich et al and the instant invention is analogous as pertaining to sizing dispersions for paper. It would have been obvious to use the claimed sodium lignosulfonate as an anionic stabilizer in the dispersion of Cenisio et al in view of Dilts et al and further in view of Wendel et al and

even further in view of Frolich et al as a typical aid used to prepare AKD. Sodium lignosulfonate is also a natural anionic polymer as required by Dilts et al. In some embodiments, one of ordinary skill in the art would have found the sizing dispersions comprising the anionic emulsifier and anionic stabilizer to be anionic as taught by Frolich et al.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS CORDRAY whose telephone number is (571)272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dennis Cordray/
Examiner, Art Unit 1791

/Eric Hug/
Primary Examiner, Art Unit 1791